as a preliminary study, but, so far as it goes, it has considerable value and interest. The Aeta of Zambales are of a dark chocolate-brown colour, and when pure their hair is woolly; the men have an average height of 5 feet 2 inches; they are broad-headed, the cephalic index of the men averaging 82 and that of the females 80; their noses are exceedingly broad, but they have practically no prognathism. The Negritos studied by the author are not in the most primitive condition, as they have ceased to be purely nomadic hunters, and have taken to a little agriculture. It is to be hoped that Mr. Reed, or some other competent person, will pay especial attention to the real nature of the "scattered families" that wander from one place to another; to discover this it will be necessary to learn the names and relationships of every individual of each community, and this should be done for several communities, then we shall learn whether they are clans with mother-right or families with father-right. It is important to map out the hunting grounds, and to record whether they consist of personal property.

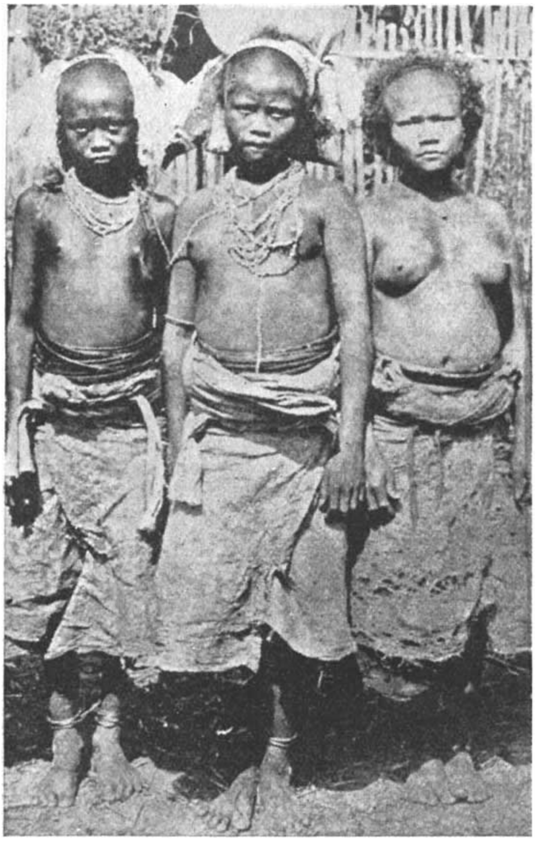

FIG. 3.—Group of Battak Women, showing Flayed-bark Skirts and Shaved Heads.

Despite the similarity of name, there is no reason to connect the Battak of Palawan with those of Sumatra. They are a wild, hunting folk, who cultivate one or two tuberous plants, and in a few places plant small fields of rice. They gather gums, which they carry to the coast and trade for rice, beads, &c. They wear a scanty garment of bark cloth. They are a mixed Negrito people, and appear to be analogous to the Sakai of the Malay Peninsula. The present paper is only a slight sketch; doubtless these interesting people will be carefully studied in the future. They, like the Negritos of Zambales and elsewhere, are worth special investigation, as they represent the first stage of the passage from a hunting to an agricultural mode of life. No people in this stage of culture has been at all adequately studied from the sociological point of view, and our American colleagues have here a fine opportunity for investigations that are much needed by ethnologists and sociologists.

The term Igorot (the form "Igorrote" is barbarous) is one of those names like Dyak, which has been used so loosely as to be worthless; etymologically it means mountaineer, and therefore can have no racial or even tribal significance. The grammatical study by Dr. Scheerer is concerned with that division of the Igorot who know themselves as Ibaloi and their language as Nabaloi. Contrary to popular opinion, the author can trace no Chinese influence among the people, but, on the other hand, he has found among Ibaloi personal names some that are pure Japanese words. At present it is impossible to say whether these are more than accidental similarities, or to determine in which direction the loan may have taken place. Nabaloi, like all Philippine dialects, is agglutinative, built up of roots and particles; it belongs to the great Oceanic linguistic stock.

A. C. HADDON.

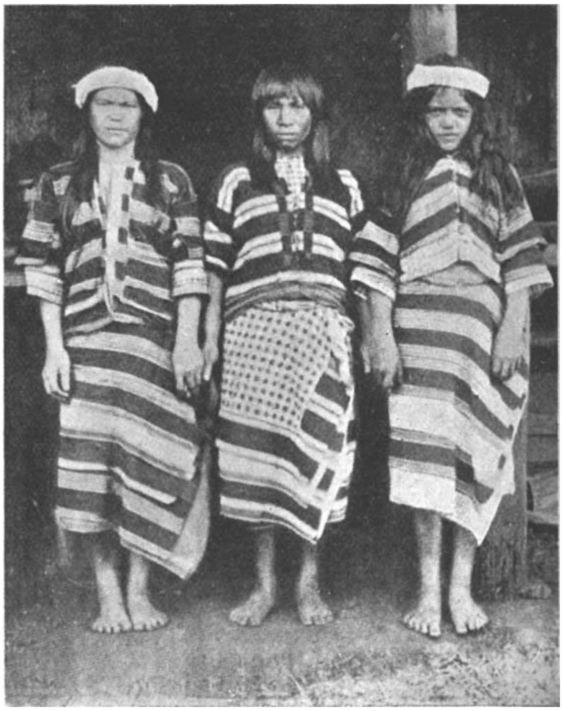

FIG. 4.—Ibaloi Women (Girl on Right Side).

THE OCEANOGRAPHY OF THE PACIFIC.

A NOTABLE addition to our knowledge of the Pacific Ocean is contained in a paper by Dr. James M. Flint, published as Bulletin No. 55 of the United States National Museum. In the early part of the year 1899 the U.S.S. *Nero*, a steam collier of nearly 5000 tons, which had been purchased for use during the Spanish-American war, was fitted out and dispatched from San Francisco with instructions to survey a route for a telegraph cable between the

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United States, the Philippine Islands, and Japan. The ship was in command of Commander Belknap so far as Manila, where he was relieved on account of illness by Lieut.-Commander H. M. Hodges.

As previous surveys had established a satisfactory route so far as the Sandwich Islands, the work of the *Nero* began at Honolulu, whence the ship sailed on May 6, 1899. The instructions were to follow as nearly direct lines as practicable from Honolulu to Midway Island, thence to Guam, and from Guam to Luzon; also from Guam to Japan. Soundings were to be taken on the outward voyage at intervals of 10 miles and 2 miles alternately; temperatures of the air, and surface and bottom of the sea to be recorded; currents noted; samples of bottom to be collected and preserved. The return course was planned to cross the primary route zigzag at angles of forty-five degrees, the sides of the zigzags to be 20 miles in length, and soundings to be taken at the apices. When it is stated that this plan, modified by circumstances chiefly as regards intervals between soundings and detours from the main line in order to develop marked irregularities in the contour of the ocean bed, was effectively carried out, we may agree that the belt 14 miles wide and more than 6000 miles in length has been examined with a thoroughness, at least in so far as soundings are concerned, which is unequalled by any survey hitherto made of an ocean tract.

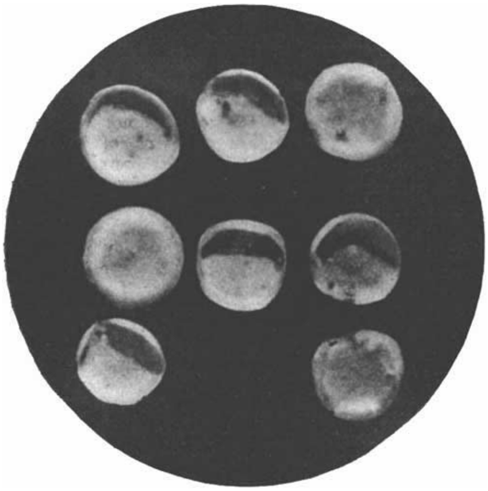

FIG. 1.—Diatom ooze obtained at a depth of 2788 fathoms in latitude 14° 24′ N., and long. 135° 31′ E. *Coscinodiscus rex*, Wallich, magnified 15 diameters.

The chief interest as regards depths centres about the region between Guam and Midway Islands. About half-way between the two a plain more than 3000 fathoms from the surface is interrupted by what is apparently a range of mountains, extending over three degrees of longitude, and rising in places to 720 fathoms from the surface. From the western limit of the plain, some 300 miles from this mountain range, the contour is quite irregular until Guam is reached. Extensive detours to north and south of the direct course showed a mountainous region, with peaks rising to 689 fathoms below sea-level and valleys descending to a depth of more than 5000 fathoms. Four soundings below the 5000-fathom line were made in an abyss to which the name "Nero Deep" was given, with the record of 5070, 5101, 5160, and 5269 fathoms. The last sounding is, of course, the deepest on record, being only 66 feet less than 6 statute miles. Its position was lat. 12° 43′ 15″ N., long. 145° 49′ E., or 75 miles E.S.E. of the island of Guam.

From Guam to Yokohama the soundings indicated a continuous range of mountains connecting the Ladrone Islands with the Bonin group.

Another result of importance obtained by the *Nero* is the discovery of diatom ooze as a bottom deposit in tropical waters. Many distinct patches of characteristic diatom ooze were found on the line, especially between Guam and Luzon. Along a line about 300 miles in length, lat. 14° 28′ to 14° 50′ N., and long. 136° to 130° 30′ E., diatom ooze was brought up at thirteen stations from depths between 2432 and 3547 fathoms. Again, between Guam and Midway Islands ooze of a similar kind was obtained at three stations. In all the specimens examined the diatoms belong almost exclusively to a single species, identified by Prof. Mann as *Coscinodiscus rex*, Wallich. We reproduce the figure given in the plates accompanying the paper of "diatom ooze from station 746 (lat. 14° 24′ N., long. 135° 31′ E.), 2788 fathoms. Magnified 15 diameters."

We are unable to do more than direct attention to the two most remarkable discoveries made by this expedition. It is scarcely necessary to add that the table of 2074 soundings, with details of bottom deposits, and a large number of temperature observations, forms in itself an even more valuable contribution to oceanography than the two "records" we have mentioned.

AGRICULTURAL RESEARCH IN INDIA.[1]

THE publication of the first annual report of the Imperial Department of Agriculture of India is little short of an epoch-marking event. As I have said elsewhere, agricultural research has not been wholly neglected in India in the past. Much excellent work has been done by able men working under conditions which were never encouraging. But it has been fitful and uncoordinated, and always at the mercy of uninstructed and unsympathetic officials, whose one canon of criticism has been the solvency of the annual balance-sheet.

India now possesses what it may be hoped before the century has run out will be regarded as the Rothamsted of the East; and the characteristic irony, I might almost say cynicism, of the British race is content that it should owe its foundation in great part to the large-minded munificence of an American gentleman.

The outcome will not be found to-day or to-morrow, but only after years of patient work. The Government of India must not be impatient for immediate results or querulous about current expenditure. That must needs be capital invested, and the return will be the eventual increase of the wealth and prosperity of the population of India.

It now possesses for the first time a real agricultural "headquarters staff." The various experts charged with particular features of the biological campaign are no longer scattered, but are brought together in one institution, where they can work in sympathetic partnership. A glance through the pages of this report is sufficient to reveal the enormous area of the field before them. It may be prudent at the start to make a sustained attack on a few problems rather than to nibble at many.

W. T. THISELTON-DYER.

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[1] Annual Report of the Imperial Department of Agriculture for the year 1904-05. (Calcutta: Government Central Press, 1906.) Price 1*s*. 2*d*.

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